CLAIMS

1. An endohedral fullerene derivative obtained by chemically modifying an endohedral fullerene doped with an atom whose electronegativity is 3 or higher, by means of a proton dissociable group.

2. The endohedral fullerene derivative as described in Claim 1 wherein the proton dissociable group is any one selected from the group comprising -OH, $-OSO_3H$, -COOH, $-SO_3H$, and $-OPO(OH)_2$.

3. A proton conductor comprised of an endohedral fullerene derivative as described in Claim 1 or 2.

4. A proton conductor comprised of an endohedral fullerene doped with an atom whose electronegativity is equal to or less than 1.

5. A proton conductor comprised of a polymerized endohedral fullerene derivative obtained by polymerizing an endohedral fullerene derivative as described in Claim 3, or comprised of a polymerized endohedral fullerene obtained by polymerizing an endohedral fullerene as described in Claim 4.

6. A fuel battery comprising a stack of cells each comprising a fuel electrode, an electrolyte membrane including a proton conductor as described in any one of Claims 3 to 5, and an air electrode.

7. A gas detector having a gas detection unit comprising a stack of cells each comprising an anode, an

electrolyte membrane including a proton conductor as described in any one of Claims 3 to 5, and a cathode.

8. A method for determining the concentration of gas such as hydrogen or hydrocarbon gas using a gas detector as described in Claim 7.

9. A leak detector having a gas detection unit comprising a stack of cells each comprising an anode, an electrolyte membrane including a proton conductor as described in any one of Claims 3 to 5, and a cathode.

10. Leak detection method for checking whether any leak occurs in a device to be tested and for identifying the site of leak if any leak is detected, the method comprising employing hydrogen as a probe gas, and using a leak detector as described in Claim 9.